Fivemile / Bell Restoration

Siuslaw National Forest

December 2005

PULSE—A collection of deep thinkers in the same place for a dedicated time to concentrate on a specific area or topic to share collective wisdom and to foster connections and collaboration.

Fivemile Bell Pulse

For hours the full moon rose arcing through the sky barely peeking over the sharp ridge that sprang from the valley floor. We watched it from the campfire where we relaxed after several days of intensive investigation, discussion, learning and planning for the future management of the beautiful Fivemile and Bell Creek valleys.

The Forest Service had recently acquired 640 acres of bottom land from Davidson Industries facilitated by the River Conservancy. The property had been homesteaded since the late 1800's with at least four known home sites over the years.

A group of, at times, 30 people gathered for 3 days to collectively share their knowledge, curiosity and wisdom to guide the future of the valley. This paper summarizes their discussions and findings from those glorious 3 days in June 2004.

The Lower Fivemile Creek valley during high spring water.

Pulse Summary Features

Pulse Participants

Local Interest Groups

Smith River Watershed Council

Local landowners

Industrial Forest Managers

Campbell Group

State Government

University professors

Private Non-Profit Groups

National Forest Foundation

Rocky Mountain Elk Foundation

EcoTrust

Environmental Communication

Federal Government

Siuslaw National Forest

US Forest Service Research

US Fish and Wildlife Service

Photo Credit:

All photos taken by

Mike Furniss

and

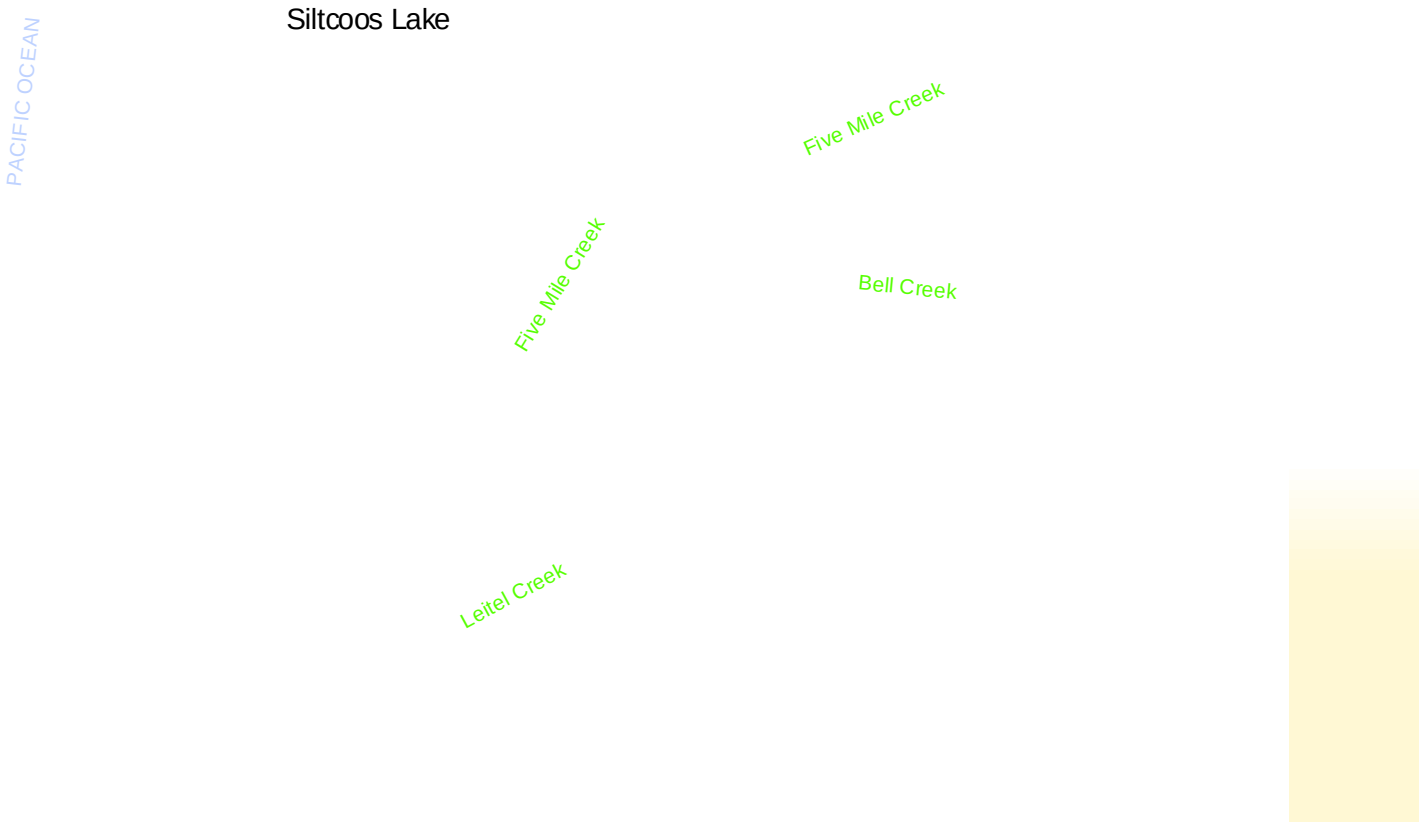
Mary Zuschlag

Special points of interest:

- Coastal Lakes fisheries are unique
- Invasive Weeds are taking over the valley
- This is incredible wildlife habitat
- There are multiple opportunities to learn from this valley.

Where is Fivemile / Bell?

Five Mile and Bell Creek Subwatersheds



Fivemile and Bell Creeks are tributary streams to Tahkenitch Lake on the central Oregon Coast between the towns of Florence and Reedsport. The area has a temperate marine climate, with cool moist winters and mild dry summers. The average annual precipitation is about 80 inches, most of it occurring as rainfall during November to February. The Fivemile and Bell Creek subwatersheds are approximately 6700 acres or 10 square miles in size. The geology is predominately Tyee Formation consiting of beds of sandstone and siltstone with alluvial bottomlands. Tahkenitch Lake is large and shallow and the lake level is controlled by the height of the dam at the outlet.

The History of Fivemile and Bell Creeks

The Lower Umpqua, Coos and Siuslaw Indians did regular burning to create meadows.

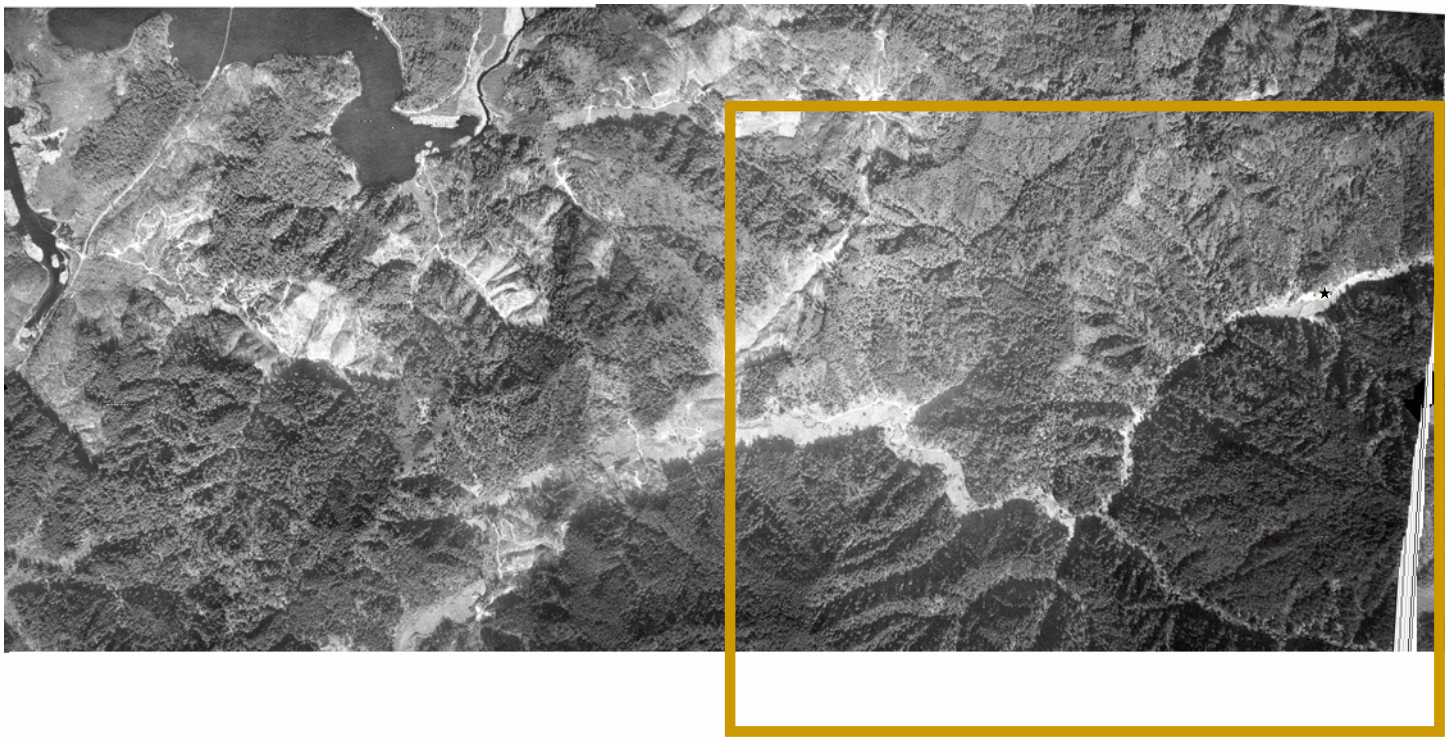
In the late 1800s, homesteaders moved in to the valley bottoms. The land the homesteaders found consisted of “an endless expanse of dead, charred, big trees remaining from the terrible forest fires” that raged in the mid 1800’s. They cleared the land by drilling holes in the snags, inserting burning coals inside so that in a few days snags burned through and fell over. For years they burned to clear the land of brush, logs, and stumps, they established orchards, and farmed small berries and grains. Some of them were able to bring in a few head of livestock (Siuslaw Pioneer 1947, 1951, 1954).

Dairying was the predominant industry in the small valley of Fivemile Creek with products packed on horseback to Glenada for shipping to markets. The main creamery was in Cushman. A school was sited in Fivemile valley just below the acquisition. Power arrived in Fivemile Creek in 1951.

In the 1940’s the Soil and Water Conservation District offered a cost share program to straighten out the creeks by dragline to increase pastureland. However, by 1952, only the streams in upper Fivemile Creek near the homestead had been straightened.

Commercial logging began soon after settlement but intensified during the 1940’s. Crown Zellerbach had a big logging camp and log landing on Tahkenitch Lake.

Historic Aerial Photograph 1952

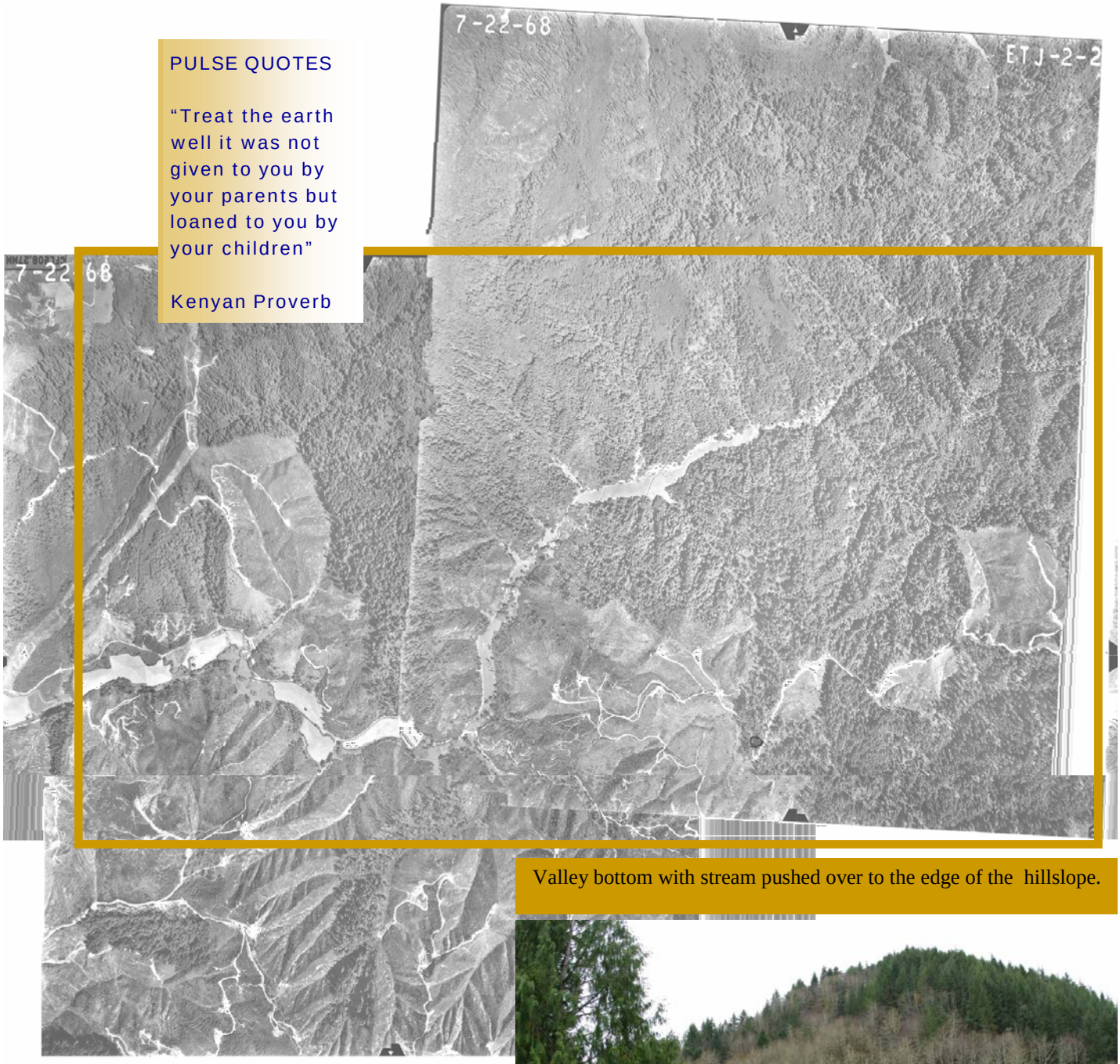


Historic Aerial Photograph 1968

PULSE QUOTES

"Treat the earth well it was not given to you by your parents but loaned to you by your children"

Kenyan Proverb



Valley bottom with stream pushed over to the edge of the hillslope.

The land was formerly used for cattle grazing, hay and timber production. Two barns and many fences remain on the property.

Timber harvest by track equipment occurred throughout the area by 1968. Portions of stream channels have been straightened to ease haying operations.

Historical Aerial Photograph 1997

The Valley Today

Years of timber harvest and valley alterations have left a patchwork of plant species and age classes on the landscape.

PULSE QUOTES

“The human body and mind are precisely adapted to this world and that is why we think it beautiful” E.O. Wilson

Changes to the Landscape Over Time

Local Needs and Values

Due to the past private ownership of this property, locals have mostly been denied access except with landowner permission. Hunting of deer has been allowed but hunting of the large elk population has been denied.

Hunting access and hunting camps are desired by the local community.

Bank fishing, especially for coastal cutthroat trout was a favored past time of youth growing up in the area. People would like to see this use allowed. There is a concern about over-fishing of cutthroat trout if it is opened up to anglers.

People love the pastoral feel of this place, they want to see the infrastructure remain and the fences maintained.

Much of this watershed is owned by private industrial timber companies and will be managed over time to maximize timber revenue for economic gain. While Campbell lands are certified for sustainable forestry, they still operate based on rate of return. Their goal is a win/win situation for habitat enhancement.

The Northwest Forest plan designates most of the federal land in the watershed as riparian reserves. As such they will be managed for late-successional forest structure (old-growth) with thinning of plantations allowed to create this structure over time.

The aquatic conservation strategy applies to all streamside areas. Protection of water quality, flow, timing, maintaining natural sediment regimes, providing habitat for aquatic species is required of all management in riparian areas.

People love the pastoral landscapes that they encounter at Fivemile Creek.

PULSE QUOTES

"Never doubt that a small group of dedicated people can change the world. Indeed, it is the only thing that ever has."

Margaret Mead

Is this truly a unique site?

What other facilities like this exist locally?

Does it provide an opportunity that doesn't exist elsewhere?

What are the lessons we'd like to learn from this site?

Hay barns appear intact and could provide shelter to visitors as they are or be developed for longer term use.

Social Concerns

What is unique about this site?

- Open valley bottoms are rare on federal land in the Oregon Coast Range.
- Low gradient unconfined stream channels that support coho salmon are also rare on federal lands in the Oregon Coast Range.
- The road access is good.
- The elk population is large with a high bull/cow ratio.
- Intact barns are an asset.
- Coho populations are the highest found on the Oregon Coast
- The coastal lake systems are a rare ecological system and support unique life histories for anadromous fish.
- Invasive plants have the potential to take over the valley bottom.
- Excellent wildlife habitat supporting elk, bear, bats, herps, and neotropical migratory birds.

Foxglove is introduced and has naturalized throughout the Oregon Coast Range.

What Should Be Done Here and For Whom?

Who is the target audience?

Does there have to be only one?

What uses are compatible with each other?

RANGE OF ALTERNATIVE USES

* Reforest the whole thing and manage for older forest habitat and fisheries.

* Develop it as a hunter camp or small campground

* Develop as an education center with volunteer management activities available.

*Manage for a variety of recreational opportunities, wildlife and fisheries species.

*Control invasie plants and don't do anything else.

There is an unique opportunity here to guide the future of this beautiful valley. Molding and blending all our ideas will undoubtedly provide the greatest good for the greatest number of people and species.

Coho spawning in upper Bell Creek

Design Criteria

- Maintain open meadow areas rather than aggressively reforesting bottom lands.
- Develop connection between the mainstem, its tributaries and floodplain to provide habitat for a variety of aquatic species.
- Restore hydrologic function of the stream and floodplain. Encourage willow and other deciduous streamside vegetation. Rebuild channel structure for coho habitat.

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- Revitalize meadow habitat through channel and vegetation manipulation that would benefit, coho, cutthroat, elk, and meadow bird fauna.
- Retain existing buildings as a basis for day user groups or education / ecotourism facilities.
- Low maintenance or self maintained

Revitalization Toolbox

Control invasive plants

Thin plantations

Plant riparian areas

Introduce beavers

Place large wood in streams

Mow meadows

Plant willow and shrubs on stream banks

Reconstruct meander patterns in streams

Use in-channel structures to raise channel elevation levels over time.

RESEARCH OPPORTUNITIES

Test / compare differences between industrial forest clearcut model of harvest every 30-40 years versus longer rotation periods and the long-term economic value of alternative forest management models.

Determine nutrient uptake from different forest management strategies and the effects on stream and lake water quality.

Determine the relationships between Tahkenitch Lake and its tributaries in the high production rates of coho salmon. What role do various portions of the stream system play in the salmon life cycle?

Determine the species composition currently using the valley bottoms and changes in species use over time as restoration practices are employed.

Wetland Vegetation Recovery

Use subtle topographic differences to determine appropriate vegetation compositions.

Use willow / beaver interactions .

Several plant association combinations are possible including willow—spirea—crabapple associations in riparian wetlands.

The wetlands of Leitel Creek are a good reference condition for plant species and stream channel dynamics.

Key Natural Processes

Steep, highly dissected slopes are prone to landslides and debris torrents. The subsequent alluvial fans deposited in the valley bottoms control topography and vegetation.

Large wood in streams is needed to store and distribute sediments slowly over time.

Use reference reaches to understand processes

and react to slight variations in groundwater and drainage.

Large flood events dominate stream channel and valley bottom characteristics. Think about them during design.

Windstorms open holes in forest canopy every 10-25 years.

Omega Team Ideas

GOAL:

Develop a mix of seral stages across the landscape.

Mainatin or enhance stream function in the lower valley.

Restore valley bottom vegetation in the upper valley.

Use as a model for restoration - by showing compatibility of small landowner operations and farm use with quality habitat.

Don't trade off coho production for other uses.

The existing pastures make this area ideal as a demonstration site for coho protection on a working farm.

Omega Team Design

BELOW HARRY CREEK:

Develop a working hobby farm

Leave stream meanders

Allow seasonal livestock use with off-channel water supply

Provide access for livestock to cross creek

Balance cattle and coho as a demonstration for landowners

HARRY CREEK TO BELL CREEK

Working hobby farm

Build meanders off existing channel at current elevation, add wood.

Enhance riparian vegetation

Fence livestock from channel but allow access across

Allow seasonal grazing.

BELL CREEK

Full valley vegetation and stream restoration

Experiment with connecting intact meandering (incised reaches) with restored sections up on floodplain.

UPPER FIVEMILE CREEK

Helicopter placement of large wood

Maintain diverse forest uplands. Demonstrate methods of adding diversity to stands for small woodland owners.

Establish management strategy for upland forest conservation/stewardship thinning of matrix lands.

DATA NEEDS:

- Topographic survey.
- Soil survey of valley bottom.
- Compare project with existing similar programs—does it fill a necessary niche?
- Is this feasible? Go to local groups and find out.
- Determine the composition of potential valley bottom vegetation especially in the upper valley.
- Measure groundwater levels to help determine planting prescriptions.
- Determine management trajectory of private industrial land.
- Inventory roads, cat roads and culverts.

THROUGHOUT VALLEY REMOVE INVASIVE WEEDS

Caption describing

Considerations for this Alternative

Safety of travel on gravel road from 101 for a demo area is questionable.

Is there a target audience or market for this demo in this area?

Are there local organizations in place to work with as partners?

Are the interventions too large-scale / expensive for the target audience?

Is industrial forestry really incompatible with fish production in the coastal lakes basins?

Does activity on adjacent private property affect restoration work done downstream, upstream or upland?

Will landowners respond better if the demo is on private land, advocated by another landowner?

Need to build a whole mechanism to enable small landowners to consider taking on a restoration project

Hold a landowner/community leader pulse and get them involved in creating the plan to make it optimally useful for them.

Alpha Team Ideas

GOAL

Restoring stream function

TASKS:

Rebuilding meander system

Initiating a beaver/willow complex

Consider options from damming water levels up to planting willows to slow flows

Reconnect some tributary streams

Provide summer and winter rearing habitat

DATA NEEDS

Survey for murrelets

Information on methods forconnecting existing base channel level to flood-plain level

At what elevation do we want the water table to be?

Is wet meadow vegetation compatible with pasture? It can only be grazed in summer, and sedges are not as good forage as upland grasses, but are great for channel stability.

How do we treat reed canary grass? Does flooding work?

Test burning in meadow areas for invasive weed control.

Alpha Team discusses options to manage Fivemile and Bell Creek valleys.

Alpha Team Design

LOWER MEADOW

Meadow management demo area

Plant or fence riparian areas

Continue to use grazing. Intensely June/ July/August

Mow pasture/ hay, maybe use fire

Remove invasive weeds

Create stream potholes

EDUCATION AREA

Centered around existing infrastructure with primitive overnight facilities

Water system will be expensive to maintain

Maintain simple, primitive quality

Demos for active/passive restoration

Hub for small school and research groups

Emphasize history

Provide resource interpretation.

TRANSITION AREA

Combine meadow maintenance and stream function

Engineered grade control structures at top of section to build up base level of stream

Pond creation, pot holes

Heavy riparian planting

Weed control

Different portion of the valley should be managed differently for different outcomes.

UPPER BELL

Create isolated meadows separated by vegetation in upper area for elk and deer

Plant clumps of hardwoods and conifers

Control invasive weeds especially along road

Build potholes into streams (pools)

Re-meander sections of stream

UPPER FIVEMILE

Add large wood

Maintain nice meander pattern

Work with the existing stream channel

UPLANDS

Thinning possibilities for existing plantations

Long-term treatments including individual tree removal, thin from below (remove smaller competitive trees)

Provide a source area for fish logs

Manage for snags, down wood, old-growth characteristics

Alpha Team Ideas

ACCESS

Maintain gate, reinforce to maintain control

Fix fence at bottom

Limit vehicle access

Guard against poaching

Keep ATV's out

Set up permit system for groups

Emphasize hiking or walking in for recreation access

Considerations for this Alternative

Channel downcutting reduces coho rearing habitat.

How do we produce variability in stands to replicate old-growth conditions?

Emphasize primitive overnight accommodations as a niche.

Do we know anything about cutthroat populations? How might access affect numbers? Could be fished out quickly.

Need to mitigate loss of meadow acres, but upland meadows without riparian access are less productive

Should the area be closed to hunting as a dispersal refuge for elk rather than pushing them out due to hunting pressure onto private land where high numbers are not desirable?

Could we use stewardship funds to fund manual release to reduce herbicide use on surrounding land?

X Team Ideas

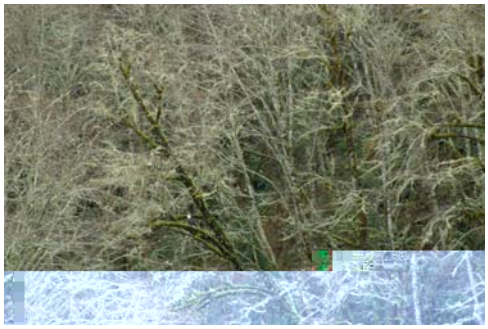
GOALS

Consider the importance of meadow systems

Provide diverse conifer/broadleaf uplands.

Maintain the cultural infrastructure

Balance the importance of elk, neotropical birds, and fish



Alder stands provide diversity and habitat for neotropical migrant bird species.

DATA NEEDS

- Good vegetation map
- Topographic map of valley
- Soil map
- Groundwater levels

BALANCE FISH, ELK, AND NEOTROPICAL MIGRATORY BIRD HABITAT DEVELOMENT.

- Baseline fish health / size data . Pit tag fish from this system and Leitel. Compare sizes at exit from lake system to evaluate productivity and potential. Evaluate overwintering survival in lake system.
- OSHA evaluation of barn as an educational / camping facility

Field discussions lead to a better understanding about the issues facing the Fivemile and Bell Creek valleys.

X Team Design

NO ACTION

Invasion by exotics

Expansion of reed canary grass

Not much change in uplands

Building and fences would disappear into blackberries and fall down

Cheapest alternative

Poor results

MANAGEMENT

Use some combination of grazing and mowing early on to keep down noxious weeds (use electric fence to keep cattle away from stream).

Manage upland for snags and Large wood.

Plant willows along stream

Upland forests should be maintained as diverse conifer/hardwood mix for neotropical migrant bird habitat.

Cutback, mow, or graze invasive plants

Need strategies to retain barn and structures, including partnerships, the barns are pleasant and unique.

TECHNIQUES

Discourage invasives by raising groundwater rather than by re-meandering

Push meadow system more toward Leitel wet meadow model

Build a series of small low-head weirs or check dams creating low-gradient, low-velocity ponds to raise stream and groundwater level and get water back into meanders

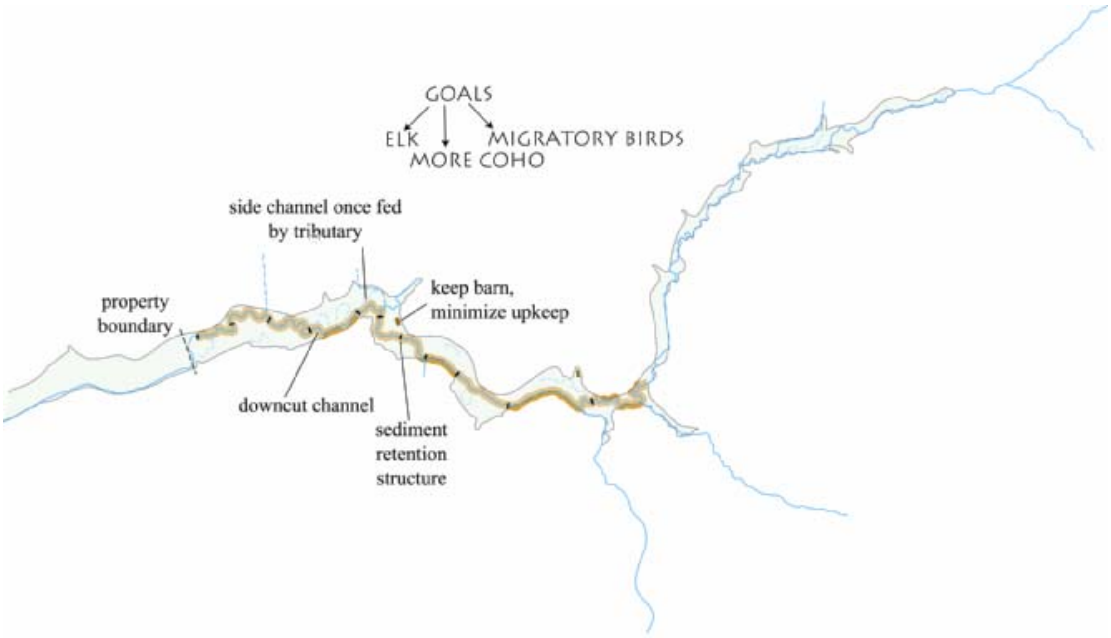
Feed water into old channels from side tributaries.

Confine efforts to property to avoid flooding road at access

Upland focus on thinning with emphasis on creating diverse stands.

Willow planting along with water levels to add channel roughness, retain sediment, and possibly encourage beaver.

X Team Ideas

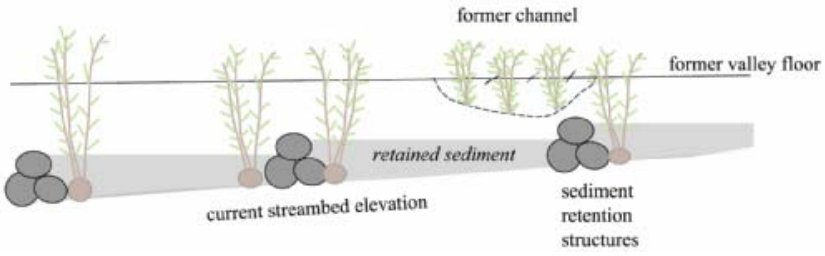


YEAR 1
Control invasives, cut, mow, grass,
Hydro, veg, topo, and fish surveys
OSHA barn evaluation
Willow planting
Barn camp host

YEAR 2
NEPA / permits
Upland treatments
Invasives control
Weirs—put in first few
Dismantle fence on NE side of barn

YEAR 3
More weirs
Excavate reed canary grass, replant natives
Develop side channels

YEAR 4-15
Thin uplands



WEIRS
Add in stages from top down—or from bottom up?
Anchored deep in banks to avoid by-passing.
Accompanied by willow planting to retain sediment
Could bulldoze them full of sediment as they're built.

Considerations for this Alternative

Need wood and/or vegetation treatments on the valley floor so that when channels and water starts to move, there's material for it to work with.

How to keep vandalism, poaching, attractive nuisance problems down?

Camp Host?

Upland management may help fund valley restoration

Groundwater levels and subtle topographic changes will control vegetation communities on the valley floor

Common Ground

Noxious weed eradication is needed NOW

Beaver are good—for habitat and channel form improvements

Willow planting is a priority, helpful toward several shared goals.

Riparian plantings are needed, species and distribution need to be worked out depending on specific objectives.

Wood should be added to Fivmile Creek

Stream restoration, both in channel shape and form is needed but the mechanism needs to be worked out.

Shared Goals Include

spending restoration dollars wisely

This is an important area for early seral vegetation

Motorized vehicle access should be controlled.

Thinning uplands should be done to retain existing diversity and introduce more diversity.

It's important to engage the public in the process of restoration.

The infrastructure, including barns, fences, bridges, and culverts should be evaluated for its suitability for goals for the property. Do this in consultation with partners who might have ideas for its use.

Raise the water table on the valley floor to create seasonal wet meadows

Potential Partners

Salmon Trout Enhancement Program

Rocky Mountain Elk Foundation

Confederated Tribes of the Coos, Umpqua and Siuslaw

Reedsport School District

Oregon Hunters Association

Sea Grant

Umpqua Fly Casters

Downstream landowners

Industrial Forest Companies Campbell Group, Roseboro, Roseburg, Miami

Smith River Watershed Council

YOU?

South Slough

Umpqua Soil and Water **Conservation District**

Bonneville Environmental Foundation

PNW Research Station

Bird and Wildlife Watchers

ODFW

Reedsport Rod and Gun Club

Audubon

USFWS

Universities

BLM

NOAA

Natural Resource Conservation Service

National Forests Foundation

INFORMATION NEEDS

Topographic mapping

Stream cross sections, longitudinal profile

Stream Flow

Soil Mapping (high intensity)

Story of Fivemile fish populations as compared to neighboring Leitel Creek Watershed

Vegetative Community survey

Reconnoiter wildlife travel corridors and neotropical bird use

History of the area—interviews with local residents, General Land Office surveys, museum collection

Property boundary survey

Road inventory, bridge and culvert survey

BASIC GUIDANCE:

Go slow, learn and adjust throughout the process

UNKNOWNS

Need to research weirs for raising the stream channel profile

The success of various weed treatment strategies

The degree of conversion from grass/forb cover to forest that is desireable in the lowland areas of the property

What level of long-term overall maintenance is desirable or possible

The intensity level and method of meadow mainenance to be used

Need a local champion for this project

Find Homer—a local champion who guides this project

FIRST YEAR TO DOs

Mow the meadow for noxious weed control

Topographic survey

Start talking to partners

Set up a starter website

Start flow monitoring

Set out photo points

Give site tours to Smith River Watershed Council and Umpqua Soil and Water Conservation District

- Decisions have NOT been made yet, althouh the PULSE has identified some common ground
- The point of the acquisition was to increase coho production

Consult with the tribes

Provide stand exams and cruise information to Ecotrust for alternative silvicultural prescriptions

Tours are an opportunity to engage in conversation and record input

Caring for the Land and Serving People

Siuslaw National Forest

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Florence, Oregon 97439

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Fax: 541-902-6946
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PLEASE CONTACT US WITH YOUR IDEAS!

Contact: Paul Burns, Fisheries Biologist

Dear Reader;

The Siuslaw National Forest is dedicated to the protection and restoration of coastal ecosystems in the central Oregon Coast Range. Acquisition of parcels that provide or have the potential to provide high quality coho habitat is an essential and critical restoration tool for the Forest. The Fivemile / Bell property fulfilled those characteristics.

We invite you to participate in the planning and implementation of the future condition of this property and hope that you will enjoy it for years to come.

José L. Linares

José Linares

Forest Supervisor

Coastal Lakes Fisheries are Unique

The coastal lakes watersheds are among the most productive spawning and rearing habitat for the Oregon Coast Coho *Oncorhynchus kisutch.* Coho salmon of Tahkenitch Lake are presently an Endangered Species Act (ESA) proposed threatened species as part of the Oregon Coast Evolutionary Significant Unit (ESU). A listing decision is expected from NOAA Fisheries in June 2005. ODFW considers the "Lakes" coho salmon populations the most robust in the ESU and are potential independent populations in their recent viability assessment. Hatchery coho salmon are not found in the Tahkenitch Lake drainage. In the last 2 decades spawners have numbered between 1,000 and 3,500 fish returning to Tahkenitch Lake with approximately 15 miles of spawning habitat in Tahkenitch tributary streams. The rearing habitat found below the 4 miles of spawning habitat in Fivemile system is a very productive marsh area.

Where Do We go From Here?

Bring this document and make presentations to multiple potential partners inviting their participation.

Forest Service planning team to meet and establish a task list and timeline for finalizing this management plan.

Finalize the "Story of Fivemile Bell" with Susan Strauss Storyteller

Invite active participation of all of the surrounding landowners to implement a whole watershed management plan.

Think outside the box about potential management options for the area, let our communities guide us.